

Appl. No. 09/967,174
Amdt. dated 10/12/2005
Reply to Office Action of 07/11/2005

REMARKS

This Amendment is in response to the Office Action mailed 07/11/2005. Reconsideration in light of the amendments and remarks made herein is respectfully requested.

Claim Amendments

Claim 20 has been amended to correct a minor editorial problem by deleting a redundant "and".

Claim 24 has been amended to more clearly express the claim by explicitly claiming the means for forming a label table and the means for forming a GID table, elements that were previously claimed implicitly. Applicant respectfully submits that the scope of the claim is unchanged by these amendments.

Rejection Under 35 U.S.C. § 102

2. The Examiner rejects claims 5, 6, 12, 13, 16, 20 and 24 under 35 U.S.C. § 102(e) as being anticipated by Hama (US PAT PUB 2004/0202171).

In regards to claim 5, 12, 20 and 24, the Examiner asserts that Hama discloses each and every element of the claimed invention citing column 7 section 87. Applicant respectfully disagrees. The cited portion of Hama describes an edge router structure. Page 7, paragraph [0083]. Applicant has amended the claims to make clear that the claims relate to a label switch router which is distinctly different than the edge router described by Hama. An edge router routes traffic between a private network and a public network by creating virtual private networks on the public network to interconnect two private networks connected through two edge routers. The ingress edge router identifies a virtual circuit (VC) that each arriving datagram is to be carried on and pushes a VC label identifying the virtual circuit onto the datagram's label

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stack as described in the specification for the present invention, paragraph [0004]. Label switch routers (LSRs) connect the edge routers. LSRs determine a next router based on the VC label of the datagram. Applicant has amended claims 5, 12, 20 and 24 to make clear that the claims are directed to a Label Switch Router and a novel method and apparatus for managing the tunnel labels that are used to determine the router to router path of the datagram based on the VC label that was attached by the ingress edge router.

In regards to claim 12, 13 and 16, applicant relies on the patentability of the routing functionality as claimed and implemented by a computer readable medium to traverse the rejection.

In regards to claim 20, applicant relies on the patentability of the routing functionality as claimed and implemented by a processor coupled to a memory to traverse the rejection.

In regards to claims 6 and 13, the Examiner asserts that Hama discloses the structure of a VPN changes from time to time by being enlarged or otherwise modified by the policy of the enterprise. This makes it necessary to update the VPN tables in conformity with the change in VPN structure. FIGS. 15A and 15B are diagrams useful in describing updating in a case where the user router communicates with another user router. Applicant respectfully points out that what is claimed is a specific method of adjusting the structure of a VPN by using a GID table which is entirely unlike what is taught by Hama. Hama does not disclose the use of GIDs to group VC labels that are mapped to a same tunnel label and a GID table that associates a GID with a tunnel label so that the tunnel labels for multiple VC labels can be updated by merely updating a single entry in a GID table as claimed.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 5, 6, 12, 13, 16, 20 and 24 under 35 U.S.C. § 102(e) as being anticipated by Hama.

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Rejection Under 35 U.S.C. § 103

5. The Examiner rejects claims 1, 2, 3, 21, 25, 26, 27, 28, 29, 30, 31, 33, 34 and 35 under 35 U.S.C. § 103(a) as being unpatentable over Hama (US PAT PUB 2004/0202171), and in view of Thang et al. (US PAT PUB 2002/0167898), hereinafter referred to as Thang.

Applicant respectfully points out that Thang has a filing date of 02/12/2002 which is after applicant's filing date of 09/27/2001. Applicant assumes that the Examiner is according Thang the benefit of the 02/13/2001 filing date of provisional application 60/268,080. This is proper only if the provisional application properly supports the subject matter relied upon to make the rejection in compliance with 35 U.S.C. 112, first paragraph. MPEP § 2136.03. Applicant respectfully requests that the Examiner make an appropriate finding regarding the reference date of Thang.

In regards to claims 1, 29, and 33, the Examiner asserts that Hama discloses each and every element of the claimed invention citing page 5 section 73 and 74. Applicant respectfully disagrees. The cited portion of Hama describes an edge router structure. Page 6, paragraph [0072]. Applicant has amended the claims to make clear that the claims relate to a label switch router which is distinctly different than the edge router described by Hama. An edge router routes traffic between a private network and a public network by creating virtual private networks on the public network to interconnect two private networks connected through two edge routers. The ingress edge router identifies a virtual circuit (VC) that each arriving datagram is to be carried on and pushes a VC label identifying the virtual circuit onto the datagram's label stack as described in the specification for the present invention, paragraph [0004]. Label switch routers (LSRs) connect the edge routers. LSRs determine a next router based on the VC label of the datagram. Applicant has amended claims 1, 29, and 33 to make clear that the claims are

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directed to a Label Switch Router and a novel method and apparatus for switching a Label Switch Path (LSP) by mapping VC labels to GIDs, mapping GIDs to tunnel labels, and remapping GIDs with new tunnel labels.

The Examiner admits that Hama does not disclose forwarding a datagram using a new tunnel label instead of the old tunnel label. The Examiner asserts that Thang discloses label swapping citing page 11 section 0227. Applicant respectfully disagrees. Thang discloses swapping from a primary routing table to a preconfigured restoration table in the event of link failures which is entirely unlike updating a mapping of a GID to a tunnel label. The portion of Thang cited by the Examiner discloses the ABR having knowledge of two failures, (one in each connected area), removing the attached label from a packet and swapping it with a label from the other restoration table. Swapping labels from a packet is entirely unlike the claimed remapping of a GID to a tunnel label which reroutes a datagram without any alteration of the datagram. Thus the combination of Hama and Thang does not teach or suggest all the claimed elements.

In regards to claims 2, 30 and 34, applicant relies on the patentability of the claims from which these claims depend to traverse the rejection without prejudice to any further basis for patentability of these claims based on the additional elements recited.

In regards to claims 3, 21, 25, 31 and 35, the Examiner admits that Hama does not disclose forwarding a datagram using a new tunnel label instead of the old tunnel label. The Examiner asserts that Thang discloses label swapping citing page 11 section 0227. Applicant respectfully disagrees. Thang discloses swapping from a primary routing table to a preconfigured restoration table in the event of link failures which is entirely unlike rewriting the first tunnel label with the second tunnel label in the mapping of the first GID. The portion of Thang cited by the Examiner discloses the ABR having knowledge of two failures, (one in each

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connected area), removing the attached label from a packet and swapping it with a label from the other restoration table. Swapping labels from a packet is entirely unlike the claimed rewriting the first tunnel label with the second tunnel label in the mapping of the first GID which reroutes a datagram without any alteration of the datagram. Thus the combination of Hama and Thang does not teach or suggest all the claimed elements.

In regards to claims 26, 27, and 28, the Examiner admits that Hama does not disclose forwarding a datagram using a new tunnel label instead of the old tunnel label. The Examiner asserts that Thang discloses label swapping citing page 11 section 0227. Applicant respectfully disagrees. Thang discloses swapping from a primary routing table to a preconfigured restoration table in the event of link failures which is entirely unlike using a backup tunnel label in the GID table to forward the datagrams to a next router instead of a current tunnel label. The portion of Thang cited by the Examiner discloses the ABR having knowledge of two failures, (one in each connected area), removing the attached label from a packet and swapping it with a label from the other restoration table. Swapping labels from a packet is entirely unlike the claimed use of a backup tunnel label. Thus the combination of Hama and Thang does not teach or suggest all the claimed elements. Applicant has amended claim 26 to add that the backup tunnel label is on the label stack above the current tunnel label to more clearly distinguish the claimed invention from the disclosures of Hama and Thang.

In regards to claim 29, 30 and 31, applicant relies on the patentability of the routing functionality as claimed and implemented by a system that communicates via bus connections to traverse the rejection.

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In regards to claims 21, 33, 34 and 35, applicant relies on the patentability of the routing functionality as claimed and implemented by a computer readable medium to traverse the rejection.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 1, 2, 3, 21, 25, 26, 27, 28, 29, 30, 31, 33, 34 and 35 under 35 U.S.C. § 103(a) as being unpatentable over Hama in view of Thang.

6. The Examiner rejects claims 7 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Hama (US PAT PUB 2004/0202171), and in view of Enoki et al. (US PAT PUB 2001/0033574), hereinafter referred to as Enoki.

In regards to claims 7 and 14, the Examiner admits that Hama does not disclose updating the label with a new label in a table. The Examiner asserts that Enoki discloses updating the GID table to reflect the new common tunnel label comprises rewriting one entry in the GID table with the new common tunnel label citing page 6 section 0132. Applicant respectfully disagrees. Enoki discloses a label-to-FEC mapping table that is entirely unlike the claimed GID table because the GID table uses a GID to access a label while the label-to-FEC mapping table of Enoki uses the label to access a Forwarding Equivalence Class (FEC). Thus the combination of Hama and Enoki does not teach or suggest all the claimed elements.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 7 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Hama in view of Enoki.

7. The Examiner rejects claims 8 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Hama (US PAT PUB 2004/0202171), and in view of Paatela et al. (US PAT PUB 2002/0163935), hereinafter referred to as Paatela.

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In regards to claims 8 and 15, the Examiner admits that Hama does not disclose using updated label instead of the old label to forward packets. The Examiner asserts that Paatela discloses forwarding the datagrams using the new common tunnel label by using the VC labels in the label table and the new common tunnel label in the GID table. Applicant respectfully disagrees. Paatels discloses an editing processor to perform packet modifications and provide packet steering information such as replacing the existing top label on the label stack with a new label so that a particular router can change one or more of the next hops. Paragraph [0063]. Replacing labels on the label stack of a packet is entirely unlike the claimed forwarding the datagrams using the new common tunnel label by using the VC labels in the label table and the new common tunnel label in the GID table which reroutes a datagram without any alteration of the datagram. Thus the combination of Hama and Paatela does not teach or suggest all the claimed elements.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 8 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Hama in view of Paatela.

8. The Examiner rejects claims 9, 10, 11, 17, 18, 19, 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Hama (US PAT PUB 2004/0202171), and in view of Cao et al. (US 6,721,269), hereinafter referred to as Cao.

In regards to claims 9, 10, 11, 17, 18, 19, 22 and 23, the Examiner admits that Hama does not disclose using an indicator telling the router to use backup label for routing during link error. The Examiner asserts that Cao discloses the GID table further maps each of the different GIDs to a different backup tunnel label such that when a backup tunnel label indicator is set, the datagrams are forwarded using the backup tunnel label citing column 9 lines 55-66 and column 10 lines 59-65. The cited portion of Cao discloses a label information base. Nothing in the label

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information base of Cao discloses a different backup tunnel label that is used when a backup tunnel label indicator is set. Thus the combination of Hama and Cao does not teach or suggest all the claimed elements.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 9, 10, 11, 17, 18, 19, 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Hama in view of Cao.

Allowable Subject Matter

9. Applicant notes with appreciation the Examiner's indication of allowable subject matter. The Examiner objects to claims 4, 32 and 36 as being dependent on a rejected base claim, but indicates that the claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has not amended claims 4, 32 and 36 at this time because applicant believes these claims depend from claims that are patentable for the reasons stated above. Applicant reserves the right to rewrite these claims in independent form at a future date.

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Conclusion

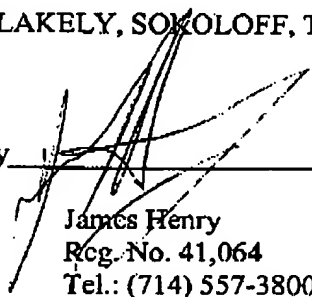
Applicant reserves all rights with respect to the applicability of the doctrine of equivalents. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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By



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